

## C A S E   H I S T O R Y

Luisa site is located at Road No. 2 km. 25 hm .4 at Vega Alta Municipality. The site consists of one old house, which has been used during fifty six years as a storehouse at the backyard of Mr. Luis Colon house, owner of the facility. The property has approximately 12 acres of land.

Mr. Colón used to buy oil and related materials in auction sales from the United States Department of Defense, at Fort Buchanan, when it was operating actively. He used to buy these products in order to resell them.

On April 20, 1971, he bought a lot of oils and related products at Fort Buchanan (Reference 7). The United States Department of Defense included sixteen drums of DDT of 25 pounds each within the lot. The area where these drums are stored consisted of five square feet at the backside room of the storehouse. The drums are completely corroded and part of the content is spreaded in the floor.

During 1985, Mr. Colón reported to the Environmental Quality Board the DDT he has at his property. On February, 1986 R.C.C.A. personal performed an inspection to the area and the case was referred to Legal Division; no further action was taken on this case since then.

Actually, Mr. Colón is making arrangements with the U.S. Department of Defense (USDOD) at Roosevelt Road facility in order to dispose the DDT out of his property. Mr. Roberto Gómez, from Roosevelt Road, informed Mr. Colón that FBI personnel will performed and inspection to identify if this material belongs to the U.S.D.O.D. in such a way that during January 9, 1989 personnel from the Regional Office can pick it up to dispose it.





POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
PRD 987366739

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)

Luisa Site

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER

Road #2 km. 25.4

03 CITY

Vega Alta

04 STATE

PR

05 ZIP CODE

00762

06 COUNTY

Vega Alta

07 COUNTY CODE

143

08 CONG DIST

09 COORDINATES LATITUDE

18 24 55.0

LONGITUDE

66 19 25.0

10 DIRECTIONS TO SITE (Starting from nearest public road)

The site is on Road #2 after the light of San Juan Cement. The entrance is at the left side of the main road.

III. RESPONSIBLE PARTIES

01 OWNER (if any)

Mr. Luis Colón

02 STREET (Business, mailing, residential)

Road #2 km. 25.4

03 CITY

Vega Alta

04 STATE

PR

05 ZIP CODE

00762

06 TELEPHONE NUMBER

809 833-4100

07 OPERATOR (if known and different from owner)

Mr. Luis Colón

08 STREET (Business, mailing, residential)

Road #2 km. 25.4

09 CITY

Vega Alta

10 STATE

PR

11 ZIP CODE

00762

12 TELEPHONE NUMBER

809 833-4100

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL

☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER

☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: / /

MONTH DAY YEAR

☐ B. UNCONTROLLED WASTE SITE (RCRA 103) DATE RECEIVED: / /

MONTH DAY YEAR

☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☐ YES

DATE

/ /

☐ NO

MONTH DAY YEAR

BY (Check all that apply)

☐ A. EPA

☐ B. EPA CONTRACTOR

☐ C. STATE

☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL

☐ F. OTHER

CONTRACTOR NAME(S):

02 SITE STATUS (Check one)

☒ A. ACTIVE

☐ B. INACTIVE

☐ C. UNKNOWN

03 YEARS OF OPERATION

1932

1988

☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

DDT in very corroded drums inside a storehouse. Some of them are broken, the DDT is exposed to the environment and part of it is spill directly over the floor inside the house.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

See attached paper

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one if high or medium is checked, complete Part 2. If none is checked, complete Part 2. Description of hazardous conditions and materials)

☐ A. HIGH

☐ B. MEDIUM

☒ C. LOW

☐ D. NONE

VI. INFORMATION AVAILABLE FROM

01 CONTACT

Eng. Juan Merced Mateo

02 OF (Agency/Organization)

Environmental Quality Board

03 TELEPHONE NUMBER

809 722-0077

04 PERSON RESPONSIBLE FOR ASSESSMENT

Eileen C. Villafañe Deyack

05 AGENCY

EQB

06 ORGANIZATION

Air Quality Control Area

07 TELEPHONE NUMBER

809 722-0077

08 DATE

12 / 7 / 88

## DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND OR POPULATION

### DDT

It is a colorless solid with a weak, chemical odor.

### Health Hazards

Ingestion of 1.5g can cause abnormal sensation, tremor, loss of coordination, headache, fatigue, delayed vomiting. Large doses cause nausea or diarrhea, nervous symptoms, convulsions, coma, paralysis. Vital signs are essentially normal, but pulse may be irregular and abnormally slow; ventricular fibrillation and sudden death may occur at anytime during acute phase. Target organs central nervous system, kidneys, liver, skin, periferal nervous system.

### Emergency First Aid

Contact with:

- a. Eyes: Wash with large amounts of water, lifting the lids occasionally. Get medical attention as soon as possible.
- b. Skin: Wash with soap or mild detergent. Remove contaminated clothing. If there is skin irritation, get medical attention.
- c. Breathing: Move patient to fresh air. Perform artificial respiration if needed. Keep patient warm and at rest. Get medical attention as soon as possible.
- d. Swallowing: Get medical attention immediately. Give large quantities of water, and then induce vomiting (mechanically with finger).

The permissible exposure limit by O.S.H.A. is  $1 \text{ mg/m}^3$ . It is incompatible with strong oxidizers. Protective equipment is necessary; clothing, gloves, face shields to prevent prolonged or repeated plain contact. Splash proof safety goggles required where there is danger of eye contact. Incineration is used as a disposal method.





POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

*The pesticide is inside a storehouse, which is completely closed. There is no possibility of groundwater contamination.*

01 ☐ B. SURFACE WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

*The pesticide is inside a storehouse completely closed, therefore surface water contamination do not apply.*

01 ☐ C. CONTAMINATION OF AIR

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

N/A

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

N/A

01 ☒ E. DIRECT CONTACT

03 POPULATION POTENTIALLY AFFECTED: 2

02 ☒ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

*The owner and his grandson have been in direct contact with the DDT since it's arrival to the site.*

01 ☐ F. CONTAMINATION OF SOIL

03 AREA POTENTIALLY AFFECTED: \_\_\_\_\_

(Acres)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

*The plaguicide is inside a closed building. There is no possibility of contamination of soil.*

01 ☐ G. DRINKING WATER CONTAMINATION

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

N/A

01 ☒ H. WORKER EXPOSURE/INJURY

03 WORKERS POTENTIALLY AFFECTED: 2

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

*The owner and his grandson have been in direct contact with the DDT since it's arrival to the site.*

01 ☐ I. POPULATION EXPOSURE/INJURY

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

04 NARRATIVE DESCRIPTION

☐ POTENTIAL

☐ ALLEGED

N/A



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

*There is no damage to flora observed during the offsite inspection.*

01 ☐ K. DAMAGE TO FAUNA  
04 NARRATIVE DESCRIPTION (Include name(s) of species)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

*There is no damage to fauna observed during the offsite inspection.*

01 ☐ L. CONTAMINATION OF FOOD CHAIN  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

*There is no contamination of food chain observed during the inspection.*

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES  
(Spills/Runoff/Standing liquids, Leaking drums)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_ 04 NARRATIVE DESCRIPTION

*The drums were completely corroded and the DDT is exposed to the environment and part of it is spill directly over the floor.*

01 ☐ N. DAMAGE TO OFFSITE PROPERTY  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

N/A

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

N/A

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

N/A

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

*The other drums inside the facility are corroded and can be broken easily. Some of them have acetone and methanol.*

III. TOTAL POPULATION POTENTIALLY AFFECTED: 2

IV. COMMENTS

*The only possible population potentially affected is the owner and his grandson that worked in the area.*

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

*Offsite Inspection Report  
Invoice of oils and related products from the US Departmento of Defense*



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION  
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A. NPDES				
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input type="checkbox"/> G. STATE (Specify)				
<input type="checkbox"/> H. LOCAL (Specify)				
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input type="checkbox"/> A. SURFACE IMPOUNDMENT			<input type="checkbox"/> A. INCENERATION	<input checked="" type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	
<input checked="" type="checkbox"/> C. DRUMS, ABOVE GROUND	16	lb.	<input type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input type="checkbox"/> D. TANK, ABOVE GROUND			<input type="checkbox"/> D. BIOLOGICAL	
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	
<input type="checkbox"/> F. LANDFILL			<input type="checkbox"/> F. SOLVENT RECOVERY	
<input type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER none (Specify)	
<input type="checkbox"/> I. OTHER (Specify)				06 AREA OF SITE 12 (Acres)

07 COMMENTS

The DDT is stored in corroded and broken drums inside a storehouse.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)			
<input type="checkbox"/> A. ADEQUATE, SECURE	<input type="checkbox"/> B. MODERATE	<input type="checkbox"/> C. INADEQUATE, POOR	<input checked="" type="checkbox"/> D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The drums are corroded and broken. They are inside a storehouse.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

The waste is easily accessible once you get into the site. They are stored in a warehouse at the backyard of the house.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Offsite Inspection Report





POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY  
(Check as applicable)

SURFACE WELL  
COMMUNITY A. ☐ B. ☐  
NON-COMMUNITY C. ☐ D. ☒

02 STATUS

ENDANGERED AFFECTED MONITORED  
A. ☐ B. ☐ C. ☐  
D. ☐ E. ☐ F. ☐

03 DISTANCE TO SITE

A. \_\_\_\_\_ (mi)  
B. .5 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING  
(Other sources available)  
COMMERCIAL, INDUSTRIAL, IRRIGATION  
(No other water sources available)  
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION  
(Limited other sources available)  
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 35,650

03 DISTANCE TO NEAREST DRINKING WATER WELL .5 (mi)

04 DEPTH TO GROUNDWATER

6 (ft)

05 DIRECTION OF GROUNDWATER FLOW

North

06 DEPTH TO AQUIFER  
OF CONCERN

300 (ft)

07 POTENTIAL YIELD  
OF AQUIFER

50,400 (gpd)

08 SOLE SOURCE AQUIFER

☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

*The only drinking water source at Vega Alta Municipality is groundwater.*

10 RECHARGE AREA

☐ YES  
☒ NO

COMMENTS

11 DISCHARGE AREA

☐ YES  
☒ NO

COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION  
DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY  
IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☒ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:

N/A

AFFECTED

DISTANCE TO SITE

☐ \_\_\_\_\_ (mi)  
☐ \_\_\_\_\_ (mi)  
☐ \_\_\_\_\_ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE  
A. 10,202  
NO. OF PERSONS

TWO (2) MILES OF SITE  
B. 7,348  
NO. OF PERSONS

THREE (3) MILES OF SITE  
C. 12,777  
NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

.09 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

5,124

04 DISTANCE TO NEAREST OFF-SITE BUILDING

.15 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

*There is a community .09 miles from the site.*



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION  
01 STATE 02 SITE NUMBER

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A.  $10^{-6}$  -  $10^{-8}$  cm/sec ☐ B.  $10^{-4}$  -  $10^{-6}$  cm/sec ☒ C.  $10^{-4}$  -  $10^{-3}$  cm/sec ☐ D. GREATER THAN  $10^{-3}$  cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than  $10^{-6}$  cm/sec) ☐ B. RELATIVELY IMPERMEABLE ( $10^{-4}$  -  $10^{-6}$  cm/sec) ☒ C. RELATIVELY PERMEABLE ( $10^{-2}$  -  $10^{-4}$  cm/sec) ☐ D. VERY PERMEABLE (Greater than  $10^{-2}$  cm/sec)

03 DEPTH TO BEDROCK

300 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

(ft)

05 SOIL pH

strongly acid

06 NET PRECIPITATION

71.16 (in)

07 ONE YEAR 24 HOUR RAINFALL

5.27 (in)

08 SLOPE

SITE SLOPE

0 %

DIRECTION OF SITE SLOPE

TERRAIN AVERAGE SLOPE

0 %

09 FLOOD POTENTIAL

it is not in a flood plain  
SITE IS IN YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A. 3 (mi)

B. (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

3 (mi)

ENDANGERED SPECIES:

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,  
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS  
PRIME AG LAND AG LAND

A. 1.5 (mi)

B. .09 (mi)

C. (mi) D. 1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is in a valley near the main road, with an intermittent creek 300 meters from the building where the DDT is stored.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Soil Survey

Censo 1980

Vega Alta Geologic Quadrangle Map

Vega Alta Topographic Quadrangle Map

Vega Alta Flooding Map

Climatological Data Annual Summary 1987

Hourly precipitation Data

PR and Virgin Islands January to December 1987

Compilation of Water-Quality

Data for the North Coast

Limestone Aquifers, PR 1951 to 1987



OFF SITE RECONNAISSANCE  
INFORMATION REPORTING FORM

Date: December 7, 1988

Site Name: Luisa Site TDD: \_\_\_\_\_

Site Address: Road No. 2 km. 25.4  
Street, Box, etc.

Vega Alta  
Town

Vega Alta  
County

Puerto Rico  
State

EQB Personnel:	Name	Discipline
	<u>Eileen C. Villafañe Deyack</u>	<u>Environmental Specialist</u>
	_____	_____
	_____	_____

Weather Conditions (clear, cloudy, rain, snow, etc.):

Cloudy and raining.

Estimated wind direction and wind speed: \_\_\_\_\_

Estimated temperature: 79° C

Signature: Eileen C. Villafañe Deyack Date: December 9, 1988

OFF SITE RECONNAISSANCE  
INFORMATION REPORTING FORM

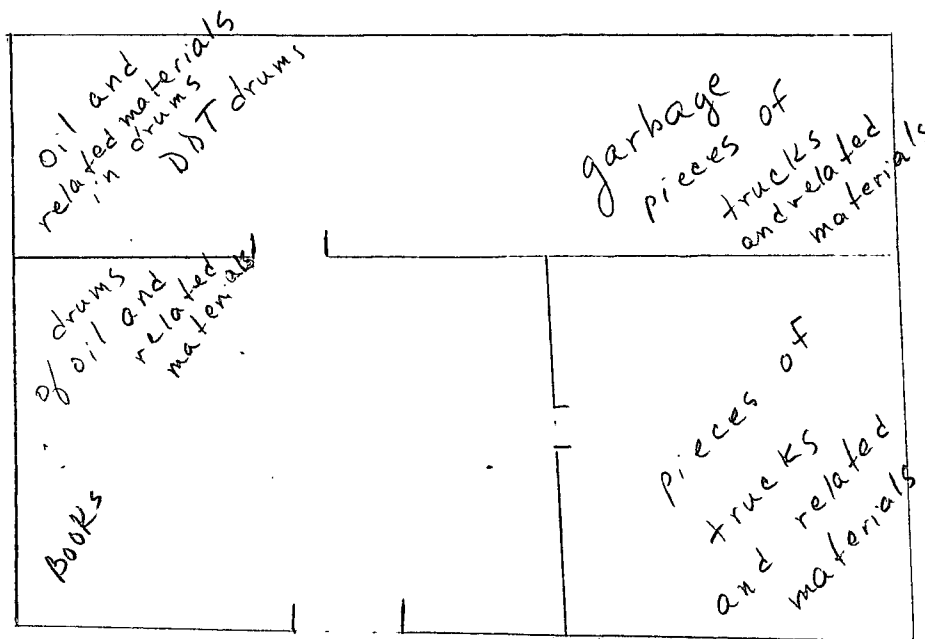
Date: December 7, 1988

Site Name: Luisa Site

TDD: \_\_\_\_\_

Site Sketch:

Indicate relative landmark locations (streets, buildings, streams, etc.).  
Provide locations from which photos are taken.



pieces of  
trucks and  
related materials

OFF SITE RECONNAISSANCE  
INFORMATION REPORTING FORM

Date: December 7, 1988

Site Name: LUISA SITE

TDD: \_\_\_\_\_

Notes (Periodically indicate time of entries in military time):

An off site inspection was performed on Mr. Luis Colón farm at Vega Alta Municipality from 10:00 to 12:00 pm. Mr. Luis Colón, owner of the farm, and Mr. Roberto Sánchez, his grandson, were with Superfund personnel during the inspection.

Mr. Colón used to buy oil and related materials in auction sales from the US Department of Defense (USDOD) since 1932. He buys these products in order to resell them.

On April 20, 1971, he bought a lot of oils and related products at Fort Buchanan when this fort was operating actively (Reference 7). The US DOD included sixteen drums of DDT of 25 pounds each within the lot. The area where these drums are stored consisted of five square feet at the backside room of the storehouse. The drums are completely corroded and part of the content is spreaded in the floor.

During 1985, Mr. Colón reported to the Environmental Quality Board the DDT he has at his property. On February, 1986, RCRA personnel performed an inspection to the area and the case was referred to Legal Division; no further action was taken on this case since then.

Signature: Eileen C. Villafañe

Date: December 7, 1988

Counter Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## OFF SITE RECONNAISSANCE

Date: December 7, 1988

Site Name: Luisa Site

TDD: \_\_\_\_\_

Notes (Periodically indicate time of entires in military time):

Mr. Colón informed that he has been making arrangements with the Roosevelt Road facility at Ceiba in order to identify all the drums with DDT and dispose them out of his property. He is looking for the invoice of the auction sale where he bought the lot of oil where the DDT was included in such a way that the Department of Defense can take the responsibility of this material and dispose of the it properly.

**OFFICE RECONNAISSANCE  
INFORMATION REPORTING FORM**

Date: December 7, 1988

Site Name: Luisa Site

\* \* \*

**P H O T O   L O G**

Camara: Minolta XG-1

Film: Kodak 24 exp.

<u>FRAME/PHOTO NUMBER</u>	<u>DATE</u>	<u>PHOTOGRAPHER</u>	<u>TIME</u>
1. Entry to the main house	12/7/88	Eileen C. Villafañe Deyack	10:00am-12:00pm
2. Road from the main house to the storehouse			
3. Road in front of the storehouse			
4. Front of the storehouse			
5. An Intermittent Creek 300 meters from the store- house and a community 500 meters in front of the storehouse			
6. The DDT in corroded drums and part of it spreaded in the floor of the storehouse			
7. Drums with oil and related materials at the backside of the DDT corroded drums			



OFFICE RECONNAISSANCE  
INFORMATION REPORTING FORM

Date: December 7, 1988

Site Name: Luisa Site

\* \* \*

P H O T O   L O G

Camara: Minolta XG-1

Film: Kodak 24 exp.

FRAME/PHOTO  
NUMBER

DATE

PHOTOGRAPHER

TIME

8-9. DDT corroded drums

10. Label of the Defense  
supply agency

11. The front side area where  
the DDT is stored



Photo 1:  
Entry to the main house

Photo 2:  
Road From the main house to the  
storehouse







Photo 3:  
Road in front of the storehouse



Photo 4:  
Front of the storehouse



### Photo 5

An intermittent creek 300 meters  
from the storehouse and a com-  
munity 500 meters in front of the  
storehouse.





Photo 6

DDT in corroded drums. Part  
of it is spreaded in the floor  
of the storehouse.



Photo 7

Drums with oil and  
related materials at  
the backside of the  
corroded drums with DDT





Photo 8 and 9 :

Corroded drums with DDT





Photo 10

Drum with a label of  
the Defense Supply Agency





Photo 11

Frontside area where  
the DDT is stored

## VEGA ALTA SOIL DESCRIPTION

The area around the site is composed of blanket sand deposits as described by the Vega Alta Geologic Quadrangle Map.

Most of the valleys between limestone ridges of the Aymanón Limestone and many of the sinkholes in the Aguada Limestone are covered by a thick deposit of orange to red sandy clay and, locally, red clayey sand. Although much of the clay may be derived from the nearby limestone, the sand has been transported by wind, streams, and possibly coastal currents.

The soil survey described the area as Espinosa Sandy Clay loam with 5 to 12 percent slopes.

This soil is deep, sloping, and well drained. It is in small valleys between limestone hills and on the coastal plains. Slopes are 400 to 800 feet long. The areas of the soil range from 20 to 60 acres.

Typically, the surface layer is dark brown, friable sandy clay loam about 10 inches thick. The subsoil is firm and multicolored and extends to a depth of 60 inches or more. It is sandy clay to a depth of 16 inches and clay at a depth of more than 16 inches.

Included with this soil in mapping are small areas of Almirante soils and small areas of exposed bedrock. Included areas make up 10 to 15 percent of the unit.

The permeability and available water capacity of this Espinosa soil are moderate. Runoff and natural fertility are medium. Reaction throughout is very strongly acid.

This soil is well suited for sugarcane, sweet potatoes, pineapples, and plantains and is used for vegetables and citrus fruits. Corps on this soil respond well to applications of lime and fertilizzier, and irrigation is needed in some places.

This soil is well suited for such pasture plants as pangolagrass, stargrass, and merkergrass. Using proper stocking rates and deferred

*grazing, controlling weeds, and liming and fertilizing are the main pasture management concerns.*

*Slope is the main limitation of the soil for nonfarm development.*

PRO Ground Water Route Work Sheet													
Rating Factor		Assigned Value				Multiplier	Score	Max. Score	Ref. Section				
[1] Observed Release		0	45		1	0*	45	3.1					
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].													
[2] Route Characteristics													
Depth to Aquifer of Concern		0	1	2	3	2	0*	6	3.2				
Net Precipitation		0	1	2	③	1	①* 3	3					
Permeability of the Unsaturated Zone		0	1	2	3	1	2*	3					
Physical State		0	1	2	3	1	2*	3					
Total Route Characteristics score						④ 7	15						
[3] Containment		0	1	2	3	1	2*	3	3.3				
[4] Waste Characteristics									3.4				
Toxicity/Persistence		0	3	6	9	12	15	18	1	18*	18		
Hazardous Waste Quantity		0	1	2	3	4	5	6	7	8	1	1*	8
Total Waste Characteristics score						19	26						
[5] Targets										3.5			
Ground Water Use		0	1	2	3	3	9*	9					
Distance to Nearest Well/Population Served		0	4	6	8	10	1	35*	40				
		12	16	18	20								
		24	30	32	35	40							
Total Targets score						44	49						
[6] If line [1] is 45, multiply [1] X [4] X [5] If line [1] is 0, multiply [2] X [3] X [4] X [5]						11,704 <del>6.7E</del>	57,330						
[7] Divide line [6] by 57,330 and multiply by 100 S = 11.67													

A '\*' represents a data gap between the Pre and the Pro

$S_M = 11.8$

PRO Surface Water Route Work Sheet									
Rating Factor	Assigned Value				Multiplier	Score	Max. Score	Ref. Section	
[1] Observed Release	0	45			1	0*	45	4.1	
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].									
[2] Route Characteristics									
Facility Slope and Intervening Terrain	0	1	2	3	1	0*	3	4.2	
1-yr. 24 hr. Rainfall	0	1	2	3	1	3*	3		
Distance to Nearest Surface Water	0	1	2	3	2	3*	6		
Physical State	0	1	2	3	1	2*	3		
Total Route Characteristics score						11	15		
[3] Containment	0	1	2	3	1	3*	3	4.3	
[4] Waste Characteristics								4.4	
Toxicity/Persistence	0	3	6	9	12	15	18	1	18*
Hazardous Waste Quantity	0	1	2	3	4	5	6	7	8
Total Waste Characteristics score						19	26		
[5] Targets								4.5	
Surface Water Use	0	1	2	3	3	0*	9		
Distance to Sensitive Environment	0	1	2	3	2	0*	6		
Distance to Water	12	16	18	20	0*				
Intake Downstream	24	30	32	35	40				
Total Targets score						0	55		
[6] If line [1] is 45, multiply [1] X [4] X [5] If line [1] is 0, multiply [2] X [3] X [4] X [5]						0.0E	64,350		
[7] Divide line [6] by 64,350 and multiply by 100 S = 0.00									

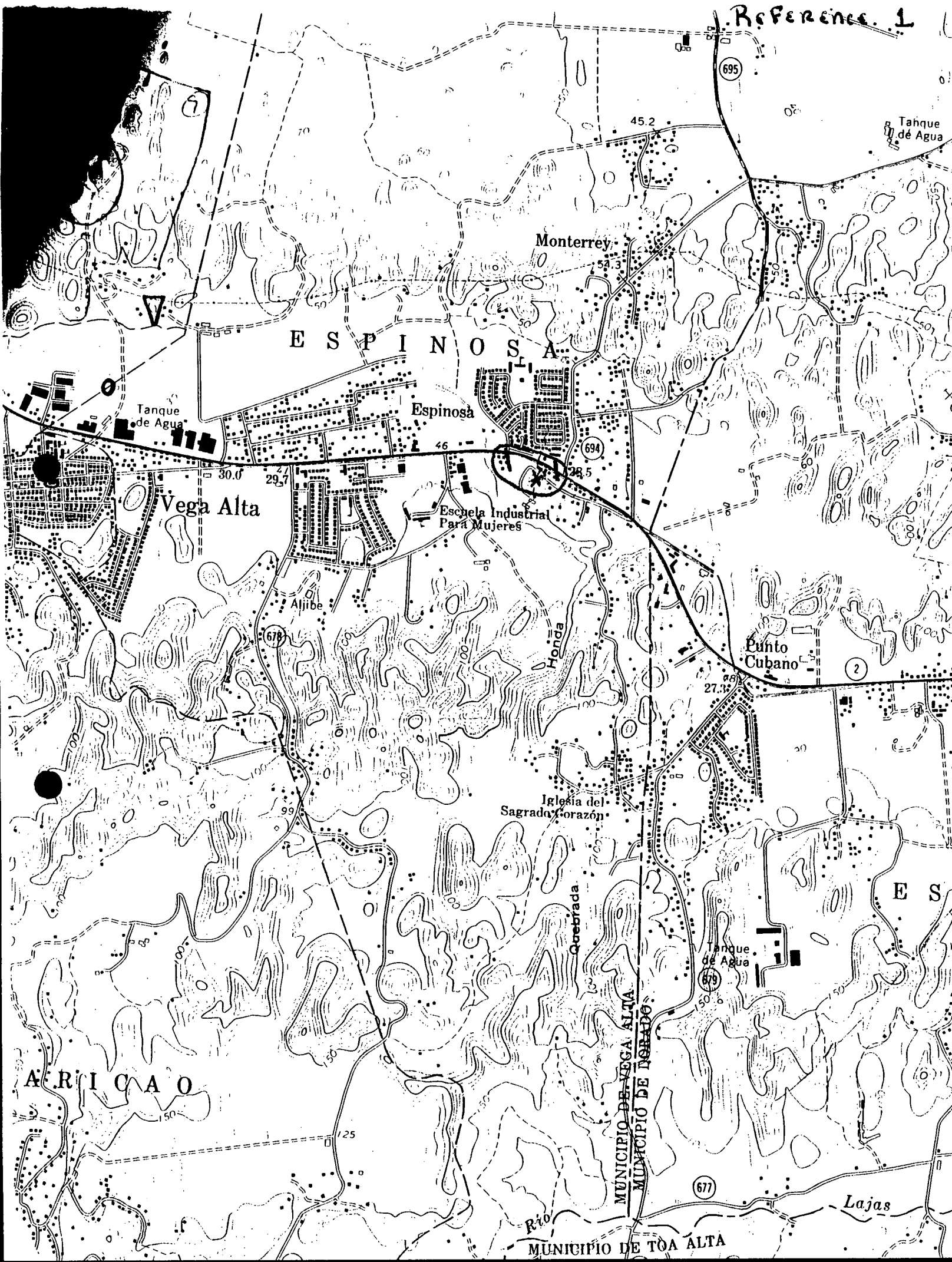
A '\*' represents a data gap between the Pre and the Pro

PRO Air Release Work Sheet											
Rating Factor	Assigned Value		Multiplier	Score	Max. Score	Ref. Section					
[1] Observe Release	0	45	1	0*	45	5.1					
Date and Location: Sampling Protocol:											
If line [1] is 0, the S a = 0, enter on line [5] If line [1] is 45, then proceed to line [2]											
[2] Waste Characteristics						5.2					
Reactivity and Incompatibility	0	1	2	3	1	3					
Toxicity	0	1	2	3	3	9					
Hazardous Waste Quantity	0	1	2	3	4	5	6	7	8	1	8
Total Route Characteristics score						20					
[3] Targets						5.3					
Population Within 4-Mile Radius	0	9	12	15	18	1	30				
Distance to Sensitive Environment	0	1	2	3		2	6				
Land Use	0	1	2	3		1	3				
Total Targets Score						39					
[4] Multiply [1] X [2] X [3]						35,100					
[5] Divide line [4] by 35,100 and multiply by 100 S a =						0					

A '\*' represents a data gap

## REFERENCES

1. Vega Alta Topographic Quadrangle Map
2. Vega Alta Geologic quadrangle Map
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4. Off Site inspection Report performed on December 7, 1988
5. NIOSH pocket guide to Chemical Hazards U.S. Department of Health and Human Services 1985
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7. Invoice of oils and related products from the U.S. Department of Defense at an Auction Sale
8. Compilation of Water - Quality Data for the North Coast Limestone Aquifers, Puerto Rico, 1951 to 1987. U.S.G.S. Open File Data Report 87-533
9. Flood Map Vega Alta Quadrangle
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15. Hazardous Ranking System Manual
16. Public Water System Major Sources: Groundwater System Supply - Surfacewater System Supply
17. Puerto Rico Aqueduct and Sewer Authority Intakes Systems Map for Vega Alta Quadrangle.
18. Water Resources of the lower Río Grande of Manatí Valey, Puerto Rico U.S.G.S. Water Resources Investigations Report 83-4199



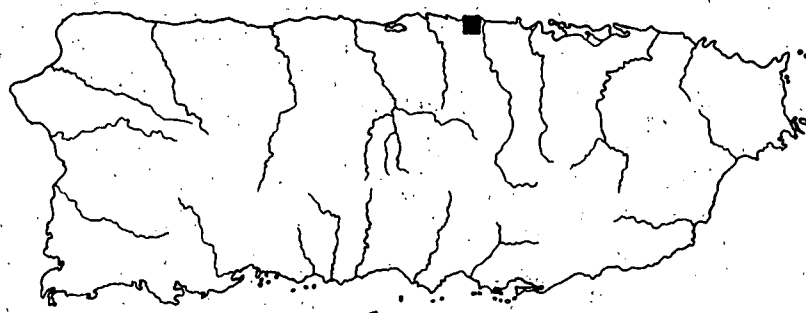


DEPARTMENT OF THE INTERIOR  
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH  
THE COMMONWEALTH OF PUERTO RICO  
ECONOMIC DEVELOPMENT ADMINISTRATION  
INDUSTRIAL RESEARCH DEPARTMENT

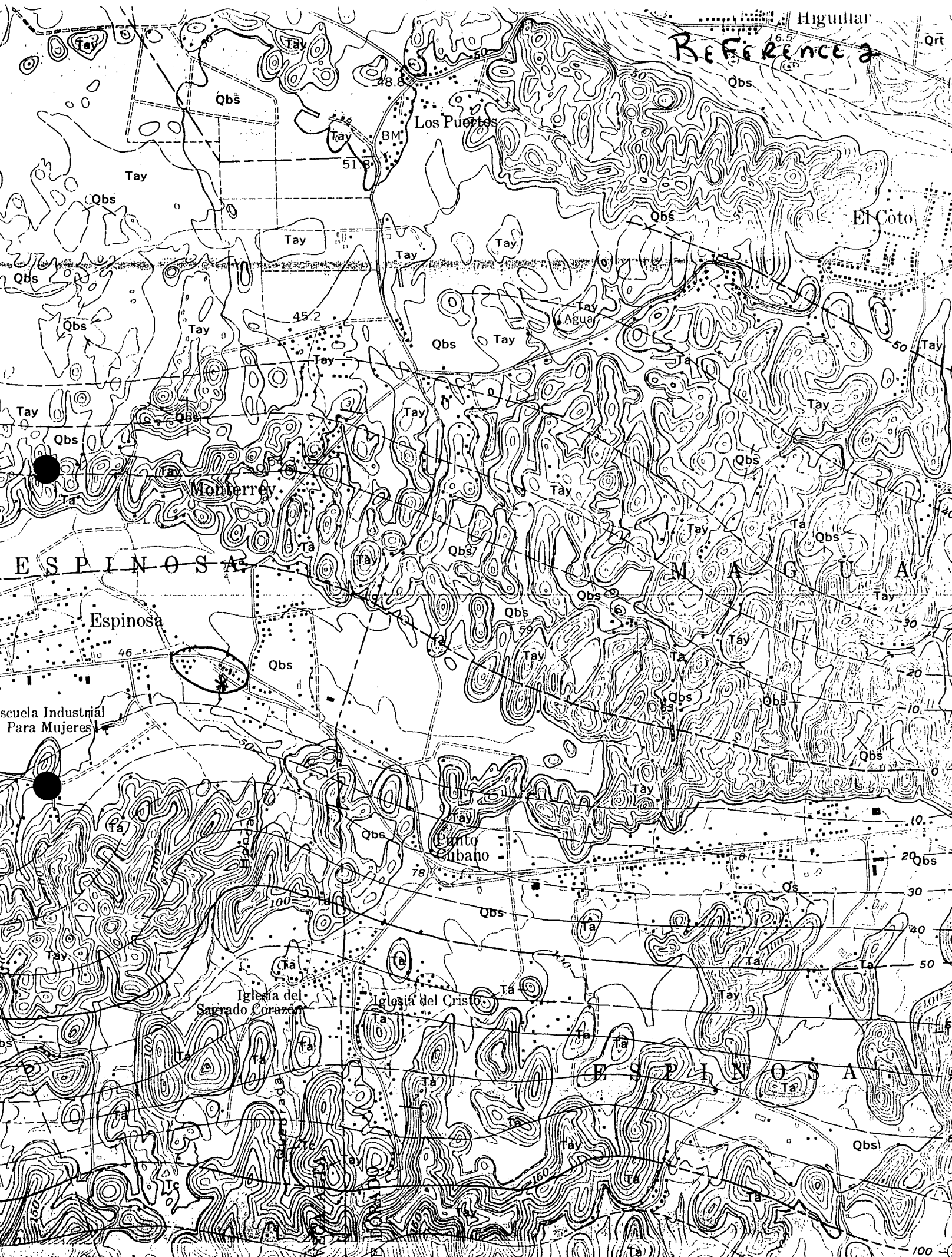
GEOLOGIC  
QUADRANGLE MAPS  
OF THE  
UNITED STATES

GEOLOGY  
OF THE  
VEGA ALTA QUADRANGLE  
PUERTO RICO  
By  
Watson H. Monroe



PUERTO RICO

QUADRANGLE LOCATION



Reference 7

U. S. NAVAL STATION  
SAN JUAN, P. R.

20 April 1971

SUCCESSFUL BIDDERS  
INVITATION NO. 62224-1025  
OPENED ON 20 APRIL 1971

NAME AND ADDRESS	ITEM	DESCRIPTION	QTY.	UNIT PRICE
Roberto Torres Box 841 Catano, P. R. 00632 CONTRACT 62224-1025-1	2	Aircraft, Spare Parts	1 lot	171.66
	19	Mimeographing Equipment	1 lot	168.66
	30	Electric Fans	1 lot	30.66
	40	Air Conditioning Unit	1 ea	23.66
	50	Display Counter & Shelves	1 lot	65.66
	63	Air Conditioning Unit	1 ea	20.66
Luis B. Colon Box 307 Vega Alta, P. R. 00762 CONTRACT 62224-1025-3	10	Battery Charger	1 ea	103.67
	28	Saw, Table, DeWalt	1 ea	42.66
	69	Truck, Cargo 2 1/2 T M35 Studebaker '52 SN 18652 USA REG 41146015	1 ea	325.67
	75	Compressor Air Rotary Ingersoll Rand 25 CFM 100 PSI USN 21-003185	1 ea	366.67
	77	Truck Forklift BUDA Solid Tires 2000# USA 10333037	1 ea	483.67
	79	Trailer Cargo 1 1/2 T Cap 2-Wheel SN 01375214	1 ea	239.69
	80	Trailer Cargo 1-1/2 T Cap 2 Wheel SN 01220723	1 ea	248.10
	81	Trailer Cargo 1-1/2 T Cap 2 Wheel SN 01220737	1 ea	256.66
	83	Paints, Sealers & Adhesives	1 lot	267.67
	3	Teletypewriter, Tape	1 lot	50.50
	24	Cardboard Boxes	1 lot	95.85
Francisco Jimenez La Rabida 208 Hato Rey, P. R. 00918 CONTRACT 62224-1025-4	59	Bed Springs	1 lot	28.50
	14	Sound Recording & Reproducing Equipment	1 lot	21.50
	17	Trailer, Engine Lift	1 ea	51.50
Antonio Bonilla Box 986 Caparra Heights, P. R. 00920 CONTRACT 62224-1025-5	41	Automotive Spare Parts	1 lot	178.50
	66	Truck Cargo 2 1/2 T M35 REO '52 SN 112824 USA REG 41204834	1 ea	606.50
	67	Truck Cargo 2 1/2 T M35 STUDEBAKER '52 SN 14693 USA REG 41119278	1 ea	286.50
	68	Truck Cargo 2 1/2 T M35 STUDEBAKER '52 SN 18691 USA REG 41146010	1 ea	301.50

SUCCESSFUL BIDDERS  
INVITATION NO. 62224-1013  
OPENING ON 1 DEC 1970

197694

3282

NAME AND ADDRESS	ITEM	DESCRIPTION	QTY.	UNIT	PRICE
Eduardo A. Bosch	23	Engine Assy., Gas	1	ea	41.00
L-8 Everglades, Park Gardens	52	Engine Assy.	1	"	42.51
Rio Piedras, P. R. 00926					
CONTRACT NO. 62224-1013-10					
Alfredo Luna	55	Clothes, Hanger	1	lot	13.13
Calle Pecheco 196	88	Truck, Stake 94-54047	1	ea	238.88
Hato Rey, P. R. 00917					
CONTRACT NO. 62224-1013-13					
Domingo A. Vallejo	19	Motor, Electric	1	ea	166.00
Box 1307	95	Trailer Cargo SN01309698	1	"	157.00
Ponce, P. R. 00731					
CONTRACT NO. 62224-1013-15					
Benjamin Alicea Roldan	46	Cables, Elect.	1	lot	50.00
Bo. Celada, Buzon 104					
Gurabo, P. R. 00658					
CONTRACT NO. 62224-1013-23					
Riozana Parts	5	Cabinets: Filing	1	lot	5.00
Box 446		(Kardex)			
Catano, P. R. 00630					
CONTRACT NO. 62224-1013-24					
Juan Jose Gerardino Jr	17	Electro Surgical	1	ea	39.51
Urb Manuel A. Perez, Edif E-22		Apparatus, Mobile			
Apt. 180, Rio Piedras, P. R. 00923					
CONTRACT NO. 62224-1013-27					
Juan Vergara Gomez	93	Truck, Ambulance 3/4 Ton 1	ea	110.99	
Carpamento Gurabo Box 739		Dodge SN 80024142			
Gurabo, P.R. 00658		USA 754561			
CONTRACT NO. 62224-1013-33					
Luis B. Colon	10	Engine, Gas 6 Cyl Heavy	1	ea	31.00
Box 307	33	Engine Assy. Gas 6 Cyl	1	"	36.67
Vega Alta, P. R. 00762	43	Cylinder Assembly	1	"	52.10
CONTRACT NO. 62224-1013-36	78	Engine Assy. Gasoline	1	"	42.16
	82	Trailer, Cargo 1-1/2 T	1	"	177.68
	85	Truck, Ambulance Dodge 53	1	"	136.77
		SN80053102 USA53K23168			
	96	Trailer, Cargo SN01341492	1	"	166.67
	98	Trailer, Cargo SN01340638	1	"	188.67
	99	Trailer, Cargo SN01220729	1	"	190.67
	100	Trailer, Cargo SN01244580	1	"	193.10
	101	Trailer, Cargo SN K46190	1	"	195.67
	102	Oil Lubricant & Waxes	1	lot	236.67
	103	Paint, Thinner & Related	1	"	69.10
		Products			

## NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT

PAGE 1 OF 2

2. FROM: (Name and address of Sales Office)

DEFENSE PROPERTY DISPOSAL REGION OFFICE  
P. O. BOX 12716  
MEMPHIS, TENNESSEE 38114

3. DATE OF AWARD

18 OCT 80

4. INVITATION NO.

31-1010

5. CONTRACT NO.

31-1010-034

6. TO: (Name and address of Purchaser)

LUIS B. COLON  
BOX 307  
VEGA ALTA, P.R.

883-4100

7. BIDDER NO.

DEFENSE PROPERTY

8. (PAID STAMP)

(For Release of Property Only)

This is to inform you that your firm has been awarded a contract of sale for the following materials as a result of the above numbered invitation to bid.

9. PROPERTY MUST BE REMOVED BY (Final date of removal)

10 OCT 80

## 10. SURPLUS AND/OR EXCHANGE/SALE ITEMS

ITEM NO. a	DESCRIPTION b	QUANTITY c	UNIT d	UNIT PRICE e	TOTAL PRICE f	QUANTITY RELEASED g
	LOCATION NAVAL STATION				ROOSEVELT ROAD PR 09551	
026	BELTS	1	Lt	78.69	78.69	1
045	MACHINE	1	ea	86.69	86.69	1
065	HARDWARE AND ABRASIVES	1	Lt	72.69	72.69	1
072	GREASE AND SEALANTS	1	Lt	28.69	28.69	1
078	CORK	1	LT	15.69	15.69	1
113	HARDWARE AND ABRASIVES	1	Lt	136.69	136.69	1
114	BELTS	1	Lt	66.69	66.69	1
123	ENGINE	1	ea	60.69	60.69	1
137	GRINDER	1	ea	75.69	75.69	1

## 11. RELEASE

A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.

TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT

B. RELEASED BY (Signature)

C. DATE

2 DEC 80

D. VOUCHER NO.

## 12. STATEMENT OF ACCOUNT

A. TOTAL CONTRACT PRICE \$

B. LESS DEPOSIT

C. BALANCE DUE

D. REFUND DUE

E. STORAGE CHARGES

F. PAYMENT RECEIVED

G. REFUND MADE

Payment of amount due the U.S. Government must be made prior to removal of any material. An agent of the purchaser obtaining release of the material must present purchaser authorization.

H. SALES CONTRACTING OFFICER (Typed or stamped name and signature)

HAROLD ORTE

XXX

m 1427

(Previous editions to be used until exhausted.)

IMPORTANT NOTICE ON REVERSE

ALL COMMUNICATIONS SHOULD INCLUDE THE CONTRACT NUMBER SHOWN IN BLOCK 5 BELOW

# NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT

2. FROM: (Name and address of Sales Office)

DEFENSE PROPERTY DISPOSAL REGION OFFICE  
P. O. BOX 14718  
MEMPHIS, TENNESSEE 38114

PAGE 1 OF 2 PAGE(S)

3. DATE OF AWARD

10 NOV 74

4. INVITATION NO.

31-519A

5. CONTRACT NO.

11-6196-

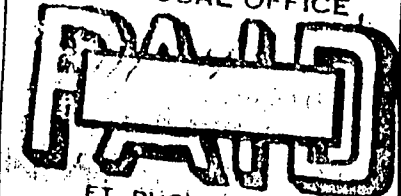
7. BIDDER NO

035

6. TO: (Name and address of Purchaser)

LUIS B. COLON  
P. O. BOX 307  
VERA ALTA, P. R. 00762

8. DEFENSE PROPERTY DISPOSAL OFFICE



This is to inform you that your firm has been awarded a contract of sale for the following materials as a result of the above numbered invitation to bid.

9. PROPERTY MUST BE REMOVED BY (Final date of removal)

XXXXXXXXXX 3 DEC 75

10. SURPLUS AND/OR EXCHANGE/SALE ITEMS						
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	QUANTITY RELEASED
	LOCATION DEF PROP DISP OFF DUCHANAN					
	FORT HUCHANAN PR 00614					
06	MISCELLANEOUS MATERIAL	1	LOT	93.10	93.10	
07	MISCELLANEOUS MATERIAL	1	LOT	133.67	133.67	
08	MISCELLANEOUS MATERIAL	1	LOT	63.69	63.69	
15	MISCELLANEOUS MATERIAL	1	LOT	109.69	109.69	
21	MISCELLANEOUS MATERIAL	1	LOT	44.69	44.69	
30	AMMUNITION BOXES	1	LOT	66.10	66.10	
34	MISCELLANEOUS MATERIAL	1	LOT	67.69	67.69	
36	FIXED FIREWEAPON STATION	1	EACH	80.69	80.69	
53	MISCELLANEOUS MATERIAL	1	LOT	24.69	24.69	

A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.

12. STATEMENT OF ACCOUNT

A. TOTAL CONTRACT PRICE	\$ 1,442.43
B. LESS DEPOSIT	00
C. BALANCE DUE	1,442.43
D. REFUND DUE	
E. STORAGE CHARGES	
F. PAYMENT RECEIVED	
G. REFUND MADE	

TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT

B. RELEASED BY (Signature)

Payment of amount due the U.S. Government must be made prior to removal of any material in excess of the purchase quantity related to the material.

**NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT**

DEFENSE PROPERTY DISPOSAL REGION OFFICE  
P. O. BOX 14710  
MEMPHIS, TENNESSEE 38114

DATE OF AWARD

10 NOV 75

INVITATION NO

31-6148

CONTRACT NO

31-6196-

**BIDDER NO**

039

035  
DEFENSE PROPERTY  
(PAID STAFF)  
DISPOSAL OFFICE

PAID 11/24/75

6. TO: (Name and address of Purchaser)

LUIS B. COLON  
P. O. BOX 307  
VEGA ALTA, P.R. 00762

This is to inform you that your firm has been awarded a contract of sale for the following materials as a result of the above numbered Invitation to Bid.

9. PROPERTY MUST BE REMOVED BY (Final date of removal)

~~25 NOV 75~~ 3 DEC 75

10.

**SURPLUS AND/OR EXCHANGE/SALE ITEMS**

11. RELEASE		12. STATEMENT OF ACCOUNT	
A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.		A. TOTAL CONTRACT PRICE	\$
		B. LESS DEPOSIT	
		C. BALANCE DUE	
		D. REFUND DUE	
		E. STORAGE CHARGES	
		F. PAYMENT RECEIVED	
		G. REFUND MADE	
TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT		Payment of Amount due the U.S. Government must be made prior to removal of any material. An Agent of the purchaser obtaining release of the material must present purchaser authorization.	
B. RELEASED BY (Signature)		H. SALES CONTRACTING OFFICER (Typed or stamped name and signature)	
C. DATE	D. VOUCHER NO.	E. A. MURRAY XXX	

BB FORM 1 APR 63 1427

REPLACES DA FORM 2332, WHICH IS OBSOLETE

PAGE 2 OF 2 PAGE(S)

**62224-1023-3**

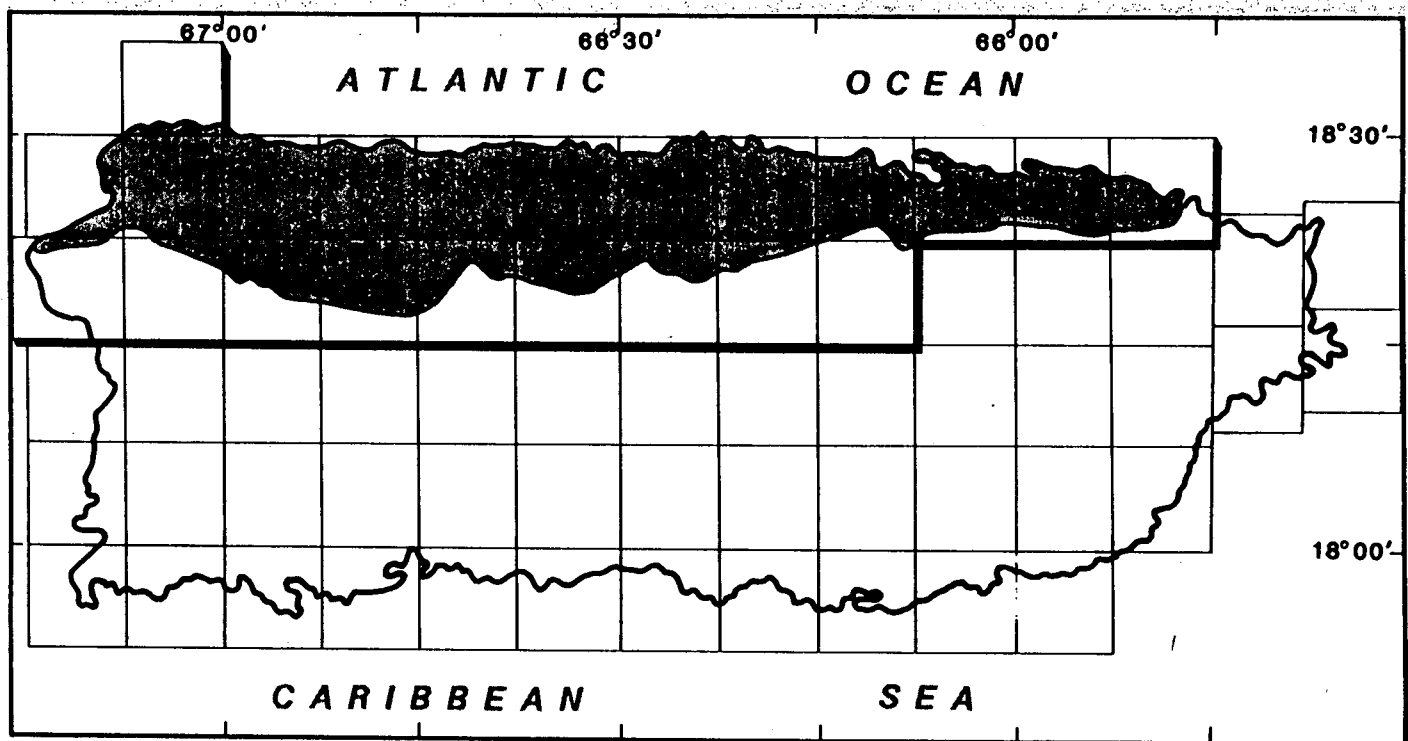
FROM: (Name and address of sales office)

SUPPLY DEPT., DISPOSAL DIV.  
U.S. NAVAL STATION, SAN JUAN, P.R.

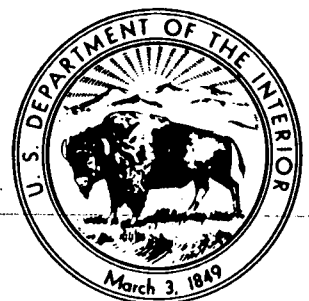
U. S. Naval Station, F. P. ( )  
New York 09550  
(62224)  
APR 21 1944  
Symbol No. 7592  
Disbursing Officer



# COMPILATION OF WATER-QUALITY DATA FOR THE NORTH COAST LIMESTONE AQUIFERS, PUERTO RICO, 1951 TO 1987



U.S. GEOLOGICAL SURVEY  
OPEN-FILE DATA REPORT 87-533



THE UNIVERSITY OF CHICAGO

Superfund

NOT TO BE SOLD

21/227  
REFERENCE 10  
PRELIMINARY REPORTS

# 1980 Census of Population and Housing

PHC80-P-53

## PUERTO RICO

### Preliminary Population and Housing Unit Counts

*This report is based on preliminary counts of population and housing units as compiled in the 1980 census district offices. The series consists of 56 reports—number 1 for the United States; numbers 2 through 52 for the States and the District of Columbia in alphabetical order rather than in order of publication; and numbers 53 through 56 for Puerto Rico, Guam, Virgin Islands, and American Samoa. Preliminary counts for the Northern Mariana Islands and the remainder of the Trust Territory of the Pacific Islands are not part of this series of reports. These counts will be made available in a separate press release issued for each area.*

As of April 1, 1980, the population of Puerto Rico was 3,187,570, according to a preliminary count of the returns of the 1980 census. This figure represents an increase of 475,537, or 17.5 percent, from the 2,712,033 inhabitants enumerated in the 1970 census.

The preliminary count of housing units in Puerto Rico as of April 1, 1980, was 990,172. This figure, which includes both occupied and vacant housing units, represents an increase of 276,459, or 38.7 percent, from the 713,713 units enumerated in the 1970 census.

This report presents preliminary 1980 census population and housing unit counts for the Commonwealth,

municipios, municipio subdivisions, zonas urbanas, and standard metropolitan statistical areas (SMSA).

The 1970 data are presented only for Puerto Rico and its municipios. The boundaries used in the 1970 census did not represent the official boundaries of some of the barrios, ciudades, and pueblos.

These preliminary figures will be superseded by the final counts to be shown in Advance Reports, series PHC80-V, which will be issued within the next few months. The final counts are subject to further processing and review and may differ from the preliminary figures.

An outline of the publication and computer tape program for the 1980 Census of Population and Housing can be obtained free of charge from the Data User Services Division, Bureau of the Census, Washington, D.C. 20233.

**Symbols used in tables.** A dash "--" represents zero. Three dots "..." means not applicable, and "(NA)" means not available. The prefix "r" indicates that the count has been revised since publication of 1970 census reports.

Issued February 1981

# CLIMATOLOGICAL DATA ANNUAL SUMMARY

## PUERTO RICO AND VIRGIN ISLANDS 1987

VOLUME 33 NUMBER 13



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
AND IS COMPILED FROM INFORMATION RECEIVED AT THE  
NATIONAL CLIMATIC DATA CENTER, ASHEVILLE NORTH CAROLINA"  
28801

*Kenneth D. Haden*

DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

**noaa**

NATIONAL  
OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

NATIONAL  
ENVIRONMENTAL SATELLITE, DATA  
AND INFORMATION SERVICE

NATIONAL  
CLIMATIC DATA CENTER  
ASHEVILLE NORTH CAROLINA

# HOURLY PRECIPITATION DATA

## PUERTO RICO AND VIRGIN ISLANDS

JANUARY 1987

VOLUME 17 NUMBER 1



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND  
IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL  
CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA."  
28801

*Kenneth D. Hadlee*

DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

**noaa**

NATIONAL  
OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

NATIONAL  
ENVIRONMENTAL SATELLITE, DATA  
AND INFORMATION SERVICE

NATIONAL  
CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

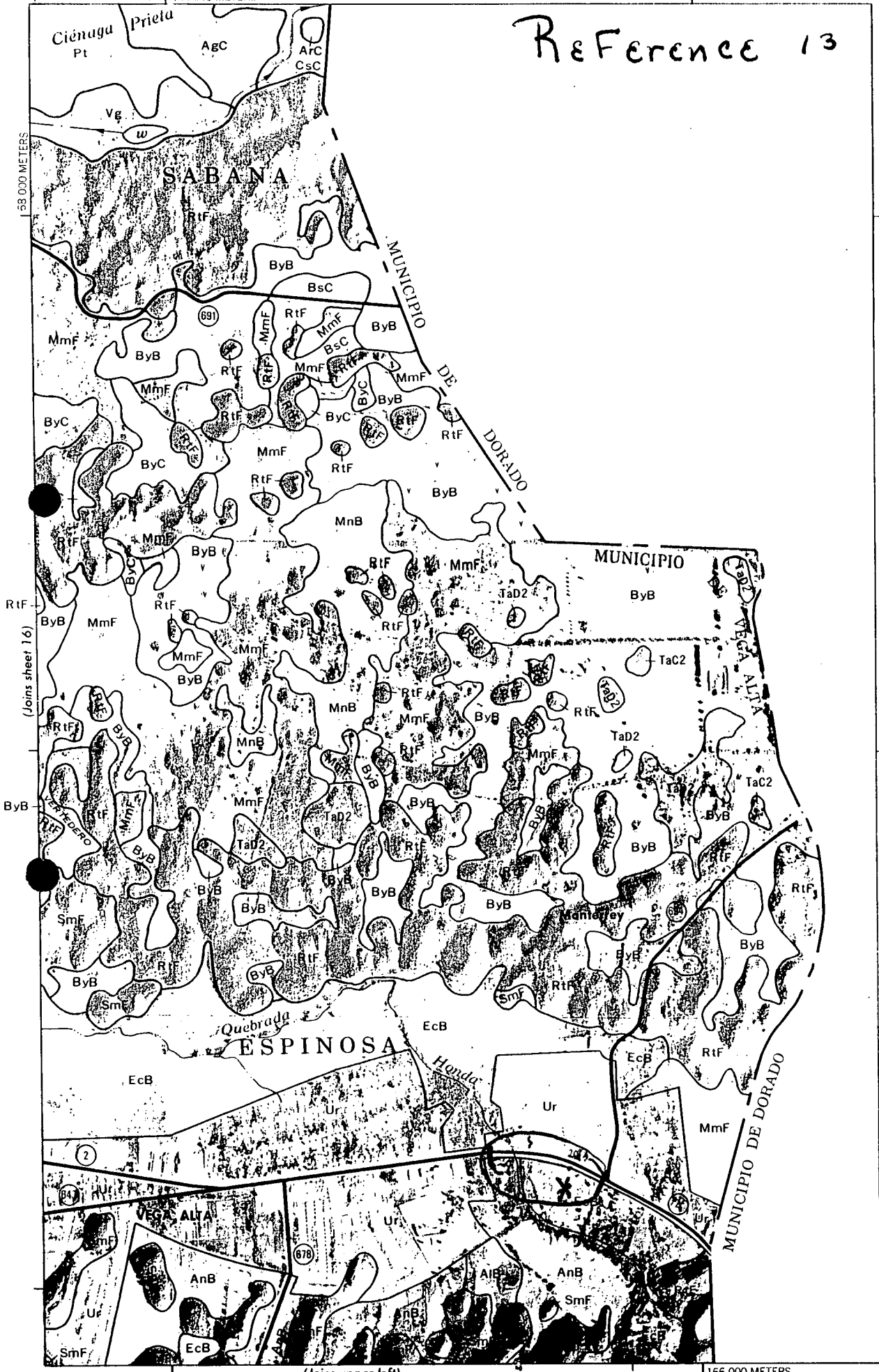
United States Department of Agriculture, Soil Conservation Service  
in cooperation with  
College of Agricultural Sciences  
University of Puerto Rico, Mayaguez Campus

soil survey of  
Arecibo Area  
Northern Puerto Rico



(Joins inset, sheet 32) 164 000 METERS

Reference 13



2000 AND 4000-METER GRID TICKS

(Joins upper left)

SmF

166 000 METERS

05/31/88  
FRDS01

FEDERAL REPORTING DATA SYSTEM  
REPORT SELECTION CRITERIA

LOCATE STATEMENT(S) USED FOR REPORT:

LOCATE (0) C100 WH NK C103 EQ G AND NK C194 EQ A AND C2 EQ PR:

THE FOLLOWING SCHEMA ITEMS WERE USED FOR SORTING:

SORTED BY PWS ID

PUBLIC WATER SYSTEMS SELECTED FOR THE REPORT:

209

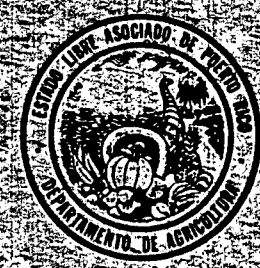
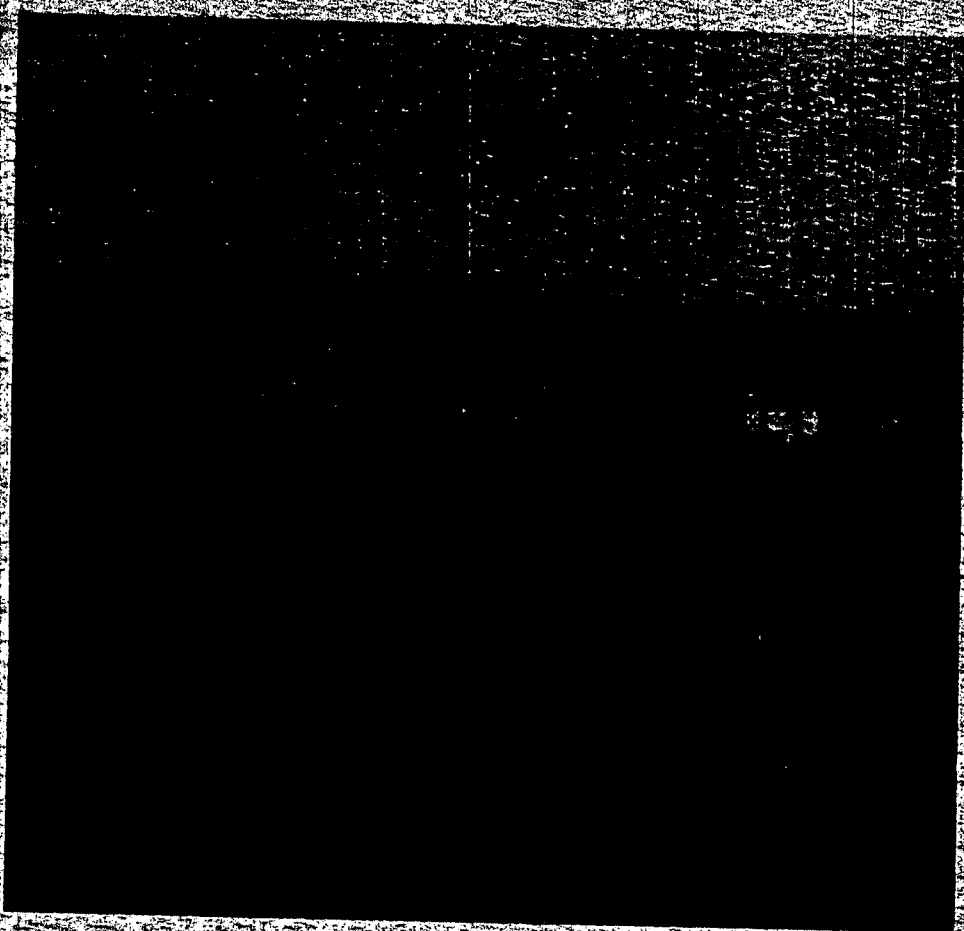
Reference 16



Page  
Reference 18

# WATER RESOURCES OF THE LOWER RIO GRANDE DE MANATI VALLEY, PUERTO RICO

U.S. GEOLOGICAL SURVEY  
WATER RESOURCES INVESTIGATIONS REPORT 83-4199



Prepared in Cooperation with the  
PUERTO RICO DEPARTMENT OF AGRICULTURE

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# Reference 18

## EXPLANATION

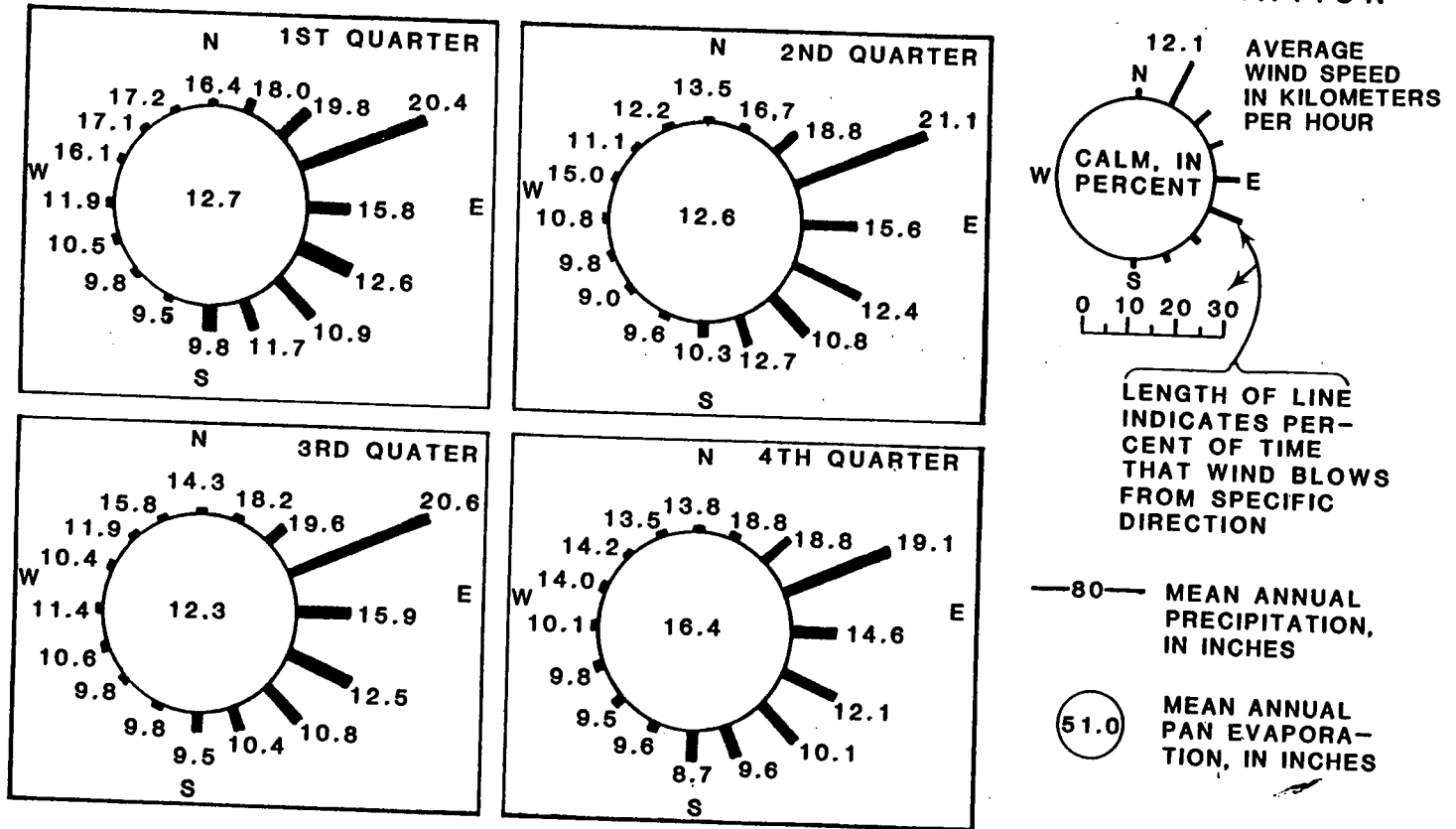


Figure 2.1-1 Average wind roses, by quarter, at Isla Verde International Airport (Mean for period 1955-1974)

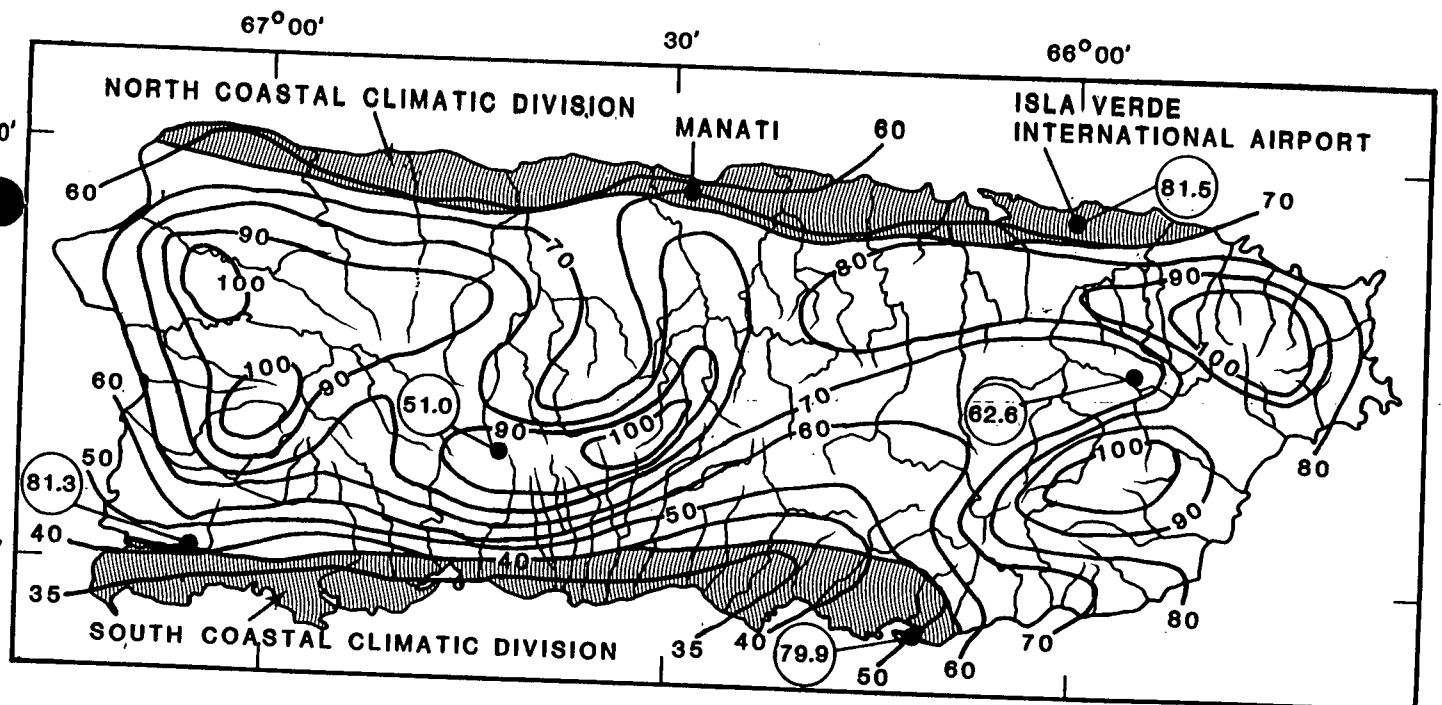


Figure 2.1-2 Rainfall distribution and pan evaporation throughout Puerto Rico (National Weather Service Data).